NOTES.

THE celebration of the jubilee of the Chemical Society was in every way most successful. At the meeting at Burlington House, on Tuesday afternoon, admirable addresses were delivered, and the *conversazione* at the Goldsmiths' Hall in the evening was attended by about 800 guests, including many eminent men of science. The Fellows and their friends dined together on Wednesday. We shall have more to say about the celebration next week.

THE following have been appointed to preside over the Sections at the Cardiff meeting of the British Association in August next:—A—Mathematics and Physics, Prof. O. J. Lodge, F.R.S.; B—Chemistry, Prof. Roberts-Austen, C.B., F.R.S.; C—Geology, Prof. Rupert Jones, F.R.S.; D—Biology, Mr. Francis Darwin, F.R.S.; E—Geography, Mr. E. G. Ravenstein, F.R.G.S.; F—Economics, Rev. Dr. W. Cunningham; G—Mechanical Science, Mr. T. Forster Brown, M.Inst.C.E.; H—Anthropology, Prof. Max Müller.

THE first *soirée* of the Royal Society this year is to be held on Wednesday, May 6. The date of the *conversazione*, to which ladies are invited, is not yet fixed.

M. JEAN SERVAIS STAS is to have a jubilee next May. The Royal Academy of Belgium purposes to strike a gold medal on the occasion of his fiftieth anniversary as a "membre titulaire de la Classe des Sciences," and to present it to M. Stas at a general meeting of the Academy on May 5. Corresponding Societies will also probably send congratulatory addresses.

ON Monday afternoon a numerous and influential meeting was held at the Mansion House in support of the University College and King's College Extension Funds. The chair was taken by the Lord Mayor. The Bishop of London moved a resolution to the effect that it is essential to the welfare and dignity of London that its institutions for University teaching should be maintained at the highest standard and in the utmost efficiency. In another resolution, moved by Lord Reay, the meeting was reminded that the two Colleges had deserved well of London and merited liberal support. Mr. W. H. Preece, F.R.S., supporting this resolution, spoke of science in its relations to trade and industry. It was only a few days ago that, in common with the Lord Mayor, he was present at the inauguration of a system of lighting the City of London which would surpass what was done in any other city of the world. It was of the highest importance that London should not be behindhand as compared with our provincial friends or our foreign competitors. London, however, was at some disadvantage compared with the other great cities—it was so vast that the local spirit was practically inoperative, and it possessed no Whitworths, or Masons, Firths, or Owens, to leave all their wealth to education. Germany and Switzerland had made lavish outlays, and the United States were founding institutions which were the wonder of the age. In all the Universities of the United States large numbers were being taught in the practical classes, and it was our bounden duty that in this war of competition between the different nations of the world we should be able to hold our own. The third resolution, moved by Dr. Erichsen, was as follows:—"That a committee be formed, under the presidency of the Right Hon. the Lord Mayor, to receive subscriptions in support of the extension funds of the two Colleges, consisting of the committee of the University College Extension Fund, under the chairmanship of Lord Reay, and of such governors and other members of the council of King's College, under the chairmanship of the Bishop of London, as the Bishop may appoint."

PROF. ARMAND SABATIER, the well-known zoologist of Montpellier, is at present collecting money for the purpose of completing the zoological marine station of Cette. This laboratory will certainly be one of the most useful in France, the fauna there being very abundant and varied. It would be difficult to conceive of a station more favourably situated. Fresh waters are plentiful, brackish waters very abundant, in the *étangs* of the vicinity; in the harbour many forms are found which do not thrive or are seldom met with on the shore; and there is open water close by.

A SHORT Bill relating to technical instruction has been introduced into the House of Commons by Sir Henry Roscoe. He proposes that a local authority shall be enabled to make such provision in aid of the technical or manual instruction for the time being supplied in a school or institution outside its district, as may, in its opinion, be necessary for the requirements of the district in cases where similar provision cannot be so advantageously made by aiding a school or institution within its district. In the same way a local authority may provide, or assist in providing, scholarships for, or pay or assist in paying the fees of, students ordinarily resident in its district, at schools or institutions within or outside that district. In distributing the provision made in aid of technical or manual instruction, the local authority is empowered to consider the relative needs of the schools or institutions aided, as well as the nature and amount of efficient technical or manual instruction supplied by those schools or institutions.

MR. JAMES MUIR, Professor of Agriculture in the Royal Agricultural College, Cirencester, has been appointed to the new Professorship of Agriculture in the Yorkshire College, Leeds.

DR. ALEXANDER BUCHAN has for some time been at work on the effect of high winds on the barometer at the Ben Nevis Observatory. The result is believed to settle this much-debated question conclusively.

MR. MOSSMAN, who has just spent six weeks on Ben Nevis, investigated the cases of glazed frost which occurred while he was there. The results he obtained are said to promise well for the extension of our knowledge of cyclones and anti-cyclones.

SOME months ago Mr. James Britten, the editor of the *Journal of Botany*, and Principal Assistant in the Botanical Department, British Museum, issued a circular notifying that the "Biographical Index of British and Irish Botanists," compiled by himself and Mr. G. S. Boulger, which has appeared in sections in the last three volumes of the *Journal of Botany*, would be reprinted in an amended and augmented form, provided that a sufficient number of subscribers could be found to cover the cost of reproduction. We regret to learn that this project is likely to fall through in consequence of the very small number that have responded to the appeal for a very small subscription. The work is so obviously valuable and interesting to all concerned in botany and horticulture, that we think it has only to be known to be in great demand.

AT the last meeting of the Russian Geographical Society, on February 18, Th. Tchernysheff made a communication about the expedition which has been engaged during the last two years in the exploration of the *tundras* of North-east Russia, and especially the Timansk Mountains. The expedition had an excellent scientific staff, including, besides the geologist, M. Tchernysheff, Prof. Backlund for determining latitudes and longitudes, a mining engineer, and a botanist. About 25,000 square miles of this almost quite unknown territory, were carefully mapped, and the geological and orographical data gathered by the expedition proved especially valuable.

Mr. William Davies, F.G.S., died on February 13, at the age of seventy-seven. For forty years he was connected with the Geological Department of the British Museum, from which he retired as senior assistant two or three years ago.

M. C. Reinwald, the *doyen* of the publishers in Paris, died suddenly a few days ago. He was the publisher of a number of scientific works, including translations of those of Darwin and Haeckel.

We are sorry to hear from St. Petersburg of the death of K. I. Maximowicz, member of the Russian Academy of Sciences, the author of well-known botanical works. He had lately been engaged in the description of the floras of Tibet, Central Asia, and Mongolia, as represented by the rich collections of Prjevalsky and Potanin. The Russian Geographical Society has lost N. L. Puschin, well known in Russia for his hydrographical works, and especially for a work upon the hydrography of the Caspian Sea. We have also to record the death of Prof. Alexeyeff, of Kieff, one of the most active and able of Russian chemists.

The donations reported at the meeting of the Royal Botanic Society on Saturday last included one from Messrs. Dakin of an extensive and interesting collection of samples of the more curious forms of tea, many of which are never seen in use in Europe or known in commerce. To these kinds of tea, extraordinary virtues are attached in China and the East, and some command fabulous prices. Several varieties of growing tea-plants from the Society's greenhouses of economic plants were on the table in illustration.

On Thursday next, March 5, Prof. C. Meymott Tidy will begin a course of three lectures at the Royal Institution on "Modern Chemistry in Relation to Sanitation."

Archæologists have, of course, been profoundly interested by the recent discovery of a vault filled with mummies and funereal coffers at Deir Elbahiri, near the plain of Thebes. The Cairo correspondent of the *Times*, telegraphing on February 24, gives the following as the latest details:—The site of the discovery is east of the Temple of Queen Fatasou, in a small spot previously undisturbed, amidst the excavations made by the late Mariette Bey and Brugsch Pasha. A well-shaft of 15 metres leads to a doorway blocked with large stones, opening on a gallery 73 metres long, whence a staircase descending 5¼ metres conducts one to a lower gallery 12 metres in length, both lying north and south. The lower gallery gives access to two mortuary chambers, four and two metres square respectively. At the top of the staircase is a transverse gallery, 54 metres long, lying east and west, the object of which is unknown. The total underground area is about 153 metres, excavated in the limestone rock to over 65 feet below the surface. The same disorder reigned amongst the contents of the tombs as was found when the famous Royal mummies were discovered nine years ago. Sarcophagi were piled upon sarcophagi, and alongside were boxes, baskets of flowers, statuettes, funereal offerings, and boxes crammed with papyri. There is every indication that the place, though originally constructed as a vast tomb, was chosen for hurried concealment in time of tumult. Some of the exteriors of the mummy-cases are unusually richly decorated with religious subjects, carefully depicted; others of large size enclose mummies in a broken condition, and were apparently procured hastily, as the spaces for the occupants' names are left unwritten upon. The contents of the papyri are as yet unknown, but hopes are entertained that the writings are of permanent historical interest and have been thus hidden to avoid destruction. The mummies are priests and priestesses of Ammon, Anubis, Seti, Mentou, and Queen Aahotep, numbering 163, the latest belong, ing to the 21st dynasty. Seventy-five papyri were found in boxes in the form of statuettes of Osiris. Each mummy is also expected to contain more or less valuable manuscripts. The collection is *en route* in barges by the Nile, and will probably reach Cairo in a few days.

The *Université de Montpellier*, a paper recently started in the city of Montpellier, publishes an interesting series of articles by Prof. C. Flahault, on the organization of higher education in Sweden and Denmark.

Dr. G. v. Lagerheim, the Professor of Botany at Quito, has been entrusted with an investigation of the Cryptogamic Flora, of Ecuador, at the expense of the Government. In the course of the next eighteen months he hopes to have completed his monographs of the Uredineæ and of the Freshwater Algæ of Ecuador.

In the neighbourhood of Ascholtshausen, in Bavaria (according to the *Moniteur Industriel*), a species of coffee is successfully cultivated on sandy soil. It is sown in spring, and begins to flower in July (the flowers sky-blue); the fruit ripens in August, and is pale yellow, like Bourbon Island coffee. The taste of this coffee is said to be very pleasant, though slightly more bitter than foreign coffee. Several families in the district named grow all their own coffee.

As a small, isolated territory, the Andaman Islands, which have been under scientific observation since 1858, afford excellent scope for studying the growth of new plants, intentionally, accidentally, or naturally introduced. Dr. Prain, of Sibpur, has studied the subject, and gives some particulars in a long paper contributed to the Journal of the Asiatic Society of Bengal. Mr. Kurz made a list of the Andaman flora in 1866, recording 520 indigenous species, and the number has since been raised by persistent search to 600. The general points of Dr. Prain's discoveries are, that in 1866 fifteen intentionally introduced plants and "sixty-one weeds of cultivation" had become established as an integral portion of the Andaman flora, and that by 1890 twenty-three more of the first and fifty-six more of the second had been added. He also observes that four of the naturalized plants noted in 1866 have disappeared. By "weeds of cultivation" is meant weeds whose seeds have been carried thither unintentionally. With very few exceptions they are the commonest of Indian road-side and rice-field weeds. A common Indian butterfly has made its appearance since the plant on which its larva feeds became naturalized.

An instrument, called the *hæmatokrit*, has been lately invented by Herr von Hedin; it is for determining the volume of corpuscles present in blood, and is based on centrifugal action. A volume of blood and one of Möller's liquid (which prevents coagulation) are mixed together, and the mixture is brought into small thick-walled glass tubes, graduated in 50 parts. The tubes rest on a brass holder which is fixed on the axis of a rotation-apparatus. After some 8000 rotations, in 5 to 7 minutes, the process is complete. The separation between the corpuscles and the salt-plasma is more distinct, in that a narrow band of leucocytes appears between them. The instrument is useful in comparing the blood of different individuals. With a little practice, the total error is not more than one volume per cent.

Señor R. A. Santillan has published a meteorological bibliography for Mexico (Mexico, 1890) which—although comparatively little has been published in that country—will be very useful for reference. Until the middle of this century very few persons paid attention to that science; the first trustworthy observations were made by Alzate in 1769, and from that time none appear to have been taken until those by Dr. Burkart, in 1826. But since the foundation of the Central Observatory, in 1877, many stations have been established in all parts of the country. The publication in question includes the titles of 228 separate works and articles in Transactions, &c., arranged under (1) authors, (2) anonymous works and reports by institutions, and (3) articles relating to Mexican meteorology in foreign periodicals. There is also a list of works on earthquake phenomena, and a classified index of subjects for easier reference.

THE Burmah Administration Report for the past year says that the total approximate area topographically surveyed in Burmah last year was 31,680 square miles, of which nearly 9620 square miles were surveyed by the Anglo-Siamese Boundary party. The total cost of these surveys was £16,880. A cadastral survey party worked in Kyaukse from November 1889 till July 1890, and surveyed 550 square miles, at a cost of over £18,500. Surveys of State lands were undertaken in several districts in Upper Burmah by small detachments of local surveyors. These parties surveyed nearly 81,000 acres in six districts.

SODIUM amide, NH_2Na, forms the subject of a communication by M. Joannis to the current number of the *Comptes rendus*, This interesting compound was supposed to have been obtained by Gay Lussac and Thénard in the form of an olive-green readily fusible substance, by heating metallic sodium in ammonia gas. The product of this reaction, however, can scarcely have consisted of pure sodamide, for M. Joannis has now obtained the isolated compound in well-defined colourless crystals, and analyzed it. He first prepared the curious substance sodammonium, first obtained by Weyl, who liquefied ammonia by heating the compound of ammonia with silver chloride at one end of a sealed tube and allowed the liquid to collect at the other cooled end of the tube in contact with metallic sodium. It has been stated that the deep blue liquid thus formed is merely a solution of sodium in liquid ammonia. However this may be, M. Joannis finds that sodammonium decomposes spontaneously at the ordinary temperature into hydrogen and sodamide. NH_2Na. The decomposition occurs rather more quickly in sunshine than in the dark, but under any circumstances is very slow, only about a third of a cubic centimetre of hydrogen being evolved per gram of sodammonium in twenty-four hours. As the decomposition slowly progresses, however, small transparent colourless crystals make their appearance, whose average diameter is about one millimetre. Upon analysis, they yield numbers agreeing with the formula NH_2Na. When thrown into water a most lively action occurs, just as if the crystals had consisted of globules of red-hot metal, violent hissing occurring without the evolution of any gas except water vapour. The solution is found to contain only soda and ammonia. Sodamide may be prepared in much larger quantities and in very much less time by allowing saturated water solutions of sodammonium and sodium chloride to react upon each other at the temperature of melting ice. Under these conditions hydrogen is liberated to the extent of one equivalent for every equivalent of sodammonium. The solution remains blue until the sodium chloride is in excess, when it becomes colourless. The white solid product of this reaction is then washed with liquefied ammonia (NH_3) to remove the sodium chloride; the last traces of chlorine are found to be eliminated after several such washings. The residual substance is sodamide. This remarkable action of sodium chloride is due to the formation of an unstable intermediate compound, NH_2Na_2Cl, which is obtained, mixed with sodium chloride, when metallic sodium is treated with excess of sodium chloride in presence of a quantity of liquefied ammonia insufficient to dissolve the whole of the sodium chloride. On treating the compound with further quantities of liquefied ammonia it is decomposed into sodium chloride which dissolves, and sodamide which is left in a pure state. This compound, NH_2Na_2Cl, behaves quite differently with water to sodamide; it dissolves quietly without the least hissing, with formation of a solution of ammonia, soda, and common salt.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mr. Henry Williams; a Green Monkey (*Cercopithecus callitrichus* ♂) from West Africa, presented by Mr. A. Mann; a Grey Ichneumon (*Herpestes griseus* ♀) from India, presented by Mr. J. Seymour Bartlett; a Jack Snipe (*Gallinago gallinula* ♂), a Common Buzzard (*Buteo vulgaris*), British, presented by Mr. W. H. St. Quintin; a Little Grebe (*Tachybaptes fluviatilis*), British, presented by Miss E. Bartlett; two Burbot (*Lota vulgaris*) from the Trent, presented by Mr. T. F. Burrows; a Scaup (*Fuligula marila* ♂), a Curlew (*Numenius arquata*), European, purchased.

OUR ASTRONOMICAL COLUMN.

THE SOLAR SPECTRUM AT MEDIUM AND LOW ALTITUDES. —Dr. Ludwig Becker, of the Royal Observatory, Edinburgh, has made a series of interesting observations of the solar spectrum at medium and low altitudes (Trans. Roy. Soc. Edin., vol. xxxii. Part 3, 1890). The region observed was between the wave-lengths 6024 and 4861. The method usually adopted for determining the wave-lengths of lines in the solar spectrum is by means of the reading of the vernier attached to the observing telescope. Dr. Becker has determined them by clamping the telescope, and recording the exact positions of a movable diffraction grating when the lines are successively brought to the fixed cross-wire in the field of view. Using one of Rowland's gratings, the angular interval between the two positions of the grating which bring the components of the E_1 line to the same direction was one second of arc in the second-order spectrum. This small angular movement has been multiplied 16,800 times by gearing several pairs of wheels and pinions together, and attaching the grating to the fastest wheel of the train. To make an observation, the observer turns the slowest wheel. The motion is transmitted by means of other wheels and endless screws, until it slowly rotates the grating and causes the lines of the spectrum to move across the fixed field of view. When the line under observation coincides with the intersection of the wires, the observer depresses one or more needles according to its degree of blackness, and the pricks thus made are recorded on a fillet of paper which is moved by another specially devised piece of apparatus. As to the linear distances between two lines on the paper, it is noted that the D lines are 19¾ inches apart, whilst the whole region of observation, λ 6024 to λ 4861, requires a strip 314 feet long. With respect to the work done, it need only be said that the memoir contains a catalogue of 3637 lines of the solar spectrum, including 928 telluric lines, between the above-mentioned limits. If 28 lines be excepted, the whole telluric spectrum is found by these observations to consist of three bands ranging from λ 6020 to λ 5666, λ 5538 to λ 5386, and λ 5111 to λ 4981, and containing respectively 678, 106, and 116 lines. Dr. Becker's investigations, combined with the results obtained by other observers, lead him to believe that the water-vapour lines of the first of the above-named bands are split into two distinct groups by a band of faint lines, which are probably due to oxygen. These two groups have been called the rain-band and the δ-band. They were known to Brewster, and his drawing of telluric absorption bands gives also the other two bands under the designation ζ and ι, besides some other bands which do not appear to be due to atmospheric absorption.

The water-vapour band (ι) between *b* and F is described by Ångström as very strong in summer. It is the same which Mr. Maxwell Hall has utilized as a rain-indicator at Jamaica.

Dr. Becker's memoir is a most important one, and all the methods of observation and reduction of observations are fully explained. The probable error in the determination of wave-length from the fillet of paper is said to be about ± 0·02 $\mu\mu$, but, of course, differs slightly with the intensity of the line observed. The catalogue of lines contains oscillation frequencies, as well as wave-lengths, and many details of value. The maps have been well reproduced by photo-lithography, and show the intensities of blackness of the solar and telluric lines as they would appear at medium altitudes of the sun for an average amount of water-vapour, and the intensities of the telluric lines only when the apparent altitude of the sun is 1° or 2°. It is unnecessary to comment upon this addition to our